
SOFTWARE REQUIREMENTS SPECIFICATION

For

**Customer Relationship
Management**

Prepared by:-

Team 5

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1. Introduction

1.1 Purpose

The purpose of this document is to outline the requirements for a Customer Relationship Management (CRM) System using JavaFX as the front end and MySQL as the backend database. It aims to provide a comprehensive understanding of both functional and non-functional aspects proposed for the CRM system. The goal of this CRM project is to create a user-friendly platform for the effective management of customer information, interactions, and support requests. The primary objective is to develop an efficient system that optimizes customer service processes through the integration of computer systems and facilitates the generation of comprehensive reports. The project aims to specify hardware and software interface requirements by utilizing ER diagrams.

1.2 Document Conventions

- Entire document should be justified.
- Convention for Main title
 - Font face: Times New Roman
 - Font style: Bold
 - Font Size: 14
- Convention for Sub title
 - Font face: Times New Roman
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- Convention for body
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1.3 Scope of Development Project

The development project focuses on transforming the conventional customer service methods into an internet-based application, providing users with real-time access to their account details, service interactions, and relevant information. The system aims to enhance user experience by offering insights into their support requests and available services.

Specifically tailored for use by customer service representatives and end-users, the product serves as a comprehensive user interface for managing customer interactions and support processes. The Customer Service CRM System can be implemented in existing or new customer service departments to efficiently handle customer information, support interactions, and reporting.

Java has been chosen as the primary development language for its advantages in terms of performance, available tools, cross-platform compatibility, libraries, cost-effectiveness (freely available), and streamlined development processes. This ensures a robust and efficient foundation for the Customer Service CRM System.

1.4 Definitions, Acronyms and Abbreviations

JAVA -> platform independence

SQL-> Structured query Language

CRM-> Customer Relationship Management.

ER-> Entity Relationship

IDE-> Integrated Development Environment

SRS-> Software Requirement Specification

1.5 References

➤ Books

- "JavaFX Documentation" - Oracle Corporation.
- "MySQL Documentation" - MySQL AB.
- "Effective Java" by Joshua Bloch. Websites

2. Overall Descriptions

2.1 Product Perspective

The CRM system employs JavaFX for a user-friendly interface, enabling users to manage customer relationships efficiently. The system includes features like customer data retrieval, communication tracking, and analytics. Users, including sales representatives and administrators, interact with the system to enhance customer interactions.

2.2 Product Function

The CRM system provides a platform for managing customer-related activities, including customer information retrieval, communication tracking, and reporting. The use of JavaFX ensures a responsive and intuitive user interface.

2.3 User Classes and Characteristics

The system provides distinct services tailored for different user roles [Customer Service Representative/Customer]. The Customer Service Representative acts as the primary controller, possessing administrator privileges. Customers, on the other hand, can be individuals seeking support services from the organization.

Features for Customer Service Representatives:

- Initiate and oversee customer support requests.
- Access information about customer categories and their interactions
- See a log of customer interactions, support requests, and communication details.
- Address customer queries, concerns, and support requests effectively.
- Add and edit customer profiles, ensuring accurate and up-to-date information.
- Generate comprehensive reports summarizing customer interactions and system performance.
- Access and manage customer accounts within the CRM system

Features for Customers:

- Explore available support categories to find relevant assistance.
- View a list of available support options within each category.
- Establish and manage a personal account within the CRM system.
- Examine a record of support interactions and requests associated with their account.
- Initiate new support requests and communicate with representatives.
- Access a history of past support interactions and requests.
- Easily locate specific information or support resources within the CRM system.

2.4 Operating Environment

The product will be operating in windows environment. The Library Management System is a website and shall operate in all famous browsers, for a model we are taking Microsoft Internet Explorer, Google Chrome, and Mozilla Firefox. Also it will be compatible with the IE 6.0. Most of the features will be compatible with the Mozilla Firefox & Opera 7.0 or higher version. The only requirement to use this online product would be the internet connection.

The hardware configuration include Hard Disk: 40 GB, Monitor: 15" Color monitor, Keyboard: 122 keys. The basic input devices required are keyboard, mouse and output devices are monitor, printer etc.

2.5 Assumptions and Dependencies

The assumptions are:-

- The coding should be error free
- The system should be user-friendly so that it is easy to use for the users
- The information of all users, customer, and interaction information must be stored in a database that is accessible by the website
- The system should have more storage capacity and provide fast access to the database
- The system should provide search facility and support quick transactions
- The Customer Service CRM system is running 24 hours a day
- Users may access from any computer that has Internet browsing capabilities and an Internet connection
- Users must have their correct usernames and passwords to enter into their online accounts and do actions

The dependencies are:-

- The specific hardware and software due to which the product will be run
- On the basis of listing requirements and specification the project will be developed and run
- The end users (admin) should have proper understanding of the product
- The system should have the general report stored
- The information of all the users must be stored in a database that is accessible by the
- CRM System Any updates regarding customer interactions should be recorded accurately in the database.

2.6 Requirement

Software Configuration:-

This software package is developed using java as front end which is supported by sun micro system. Microsoft SQL Server as the back end to store the database.

Operating System: Windows NT, windows 98, Windows XP

Language: Java Runtime Environment, Net beans 7.0.1 (front end)

Database: MS SQL Server (back end)

Hardware Configuration:-

Processor: Pentium(R) Dual-core CPU

Hard Disk: 40GB

RAM: 256 MB or more

2.7 Data Requirement

The Customer Service CRM system relies on inputs in the form of queries to the database, and the corresponding outputs provide solutions for these queries. Additionally, the system outputs details to users regarding their customer service interactions. For this project, user inputs will include queries such as creating a support request, accessing support information, and making specific requests for

assistance. The outputs, visible when users request information from the server, include timestamps, dates, and a record of ongoing and past interactions with the customer service team.

3. External Interface Requirement

3.1 GUI

The Customer Service CRM software features an intuitive graphical interface designed to cater to both users and administrators, facilitating essential tasks like creating, updating, and viewing customer interactions.

- Users can generate quick reports on support interactions, such as support requests issued or resolved within a specific timeframe.
- The system provides stock verification and a robust search function based on various criteria to enhance user accessibility.
- Administrators can personalize the user interface to align with specific preferences and organizational needs.
- All modules seamlessly integrate into the graphical user interface, ensuring compliance with defined standards.
- The design emphasizes simplicity, maintaining a standardized template across various interfaces for consistency and user-friendliness.

Login Interface:

New users can register by entering required details, creating their accounts. Upon account creation, users can log in using their username and password. Incorrect login details prompt an error message for user correction.

Search Functionality:

Users, whether customers or service representatives, can search for specific support information by entering relevant search criteria.

Categories View:

The Categories view displays various support categories available, enabling administrators to add, edit, or delete categories from the list.

Control Panel for Customer Service Representatives:

This control panel empowers customer service representatives to manage user accounts, handle support resources, and facilitate support interactions effectively.

4. System Features

The users of the system should be provided the surety that their account is secure. This is possible by providing:-

- User authentication and validation of members using their unique member ID
- Administrators monitor and update account status, issue pop-ups for members attempting to exceed support request limits, and assign penalties for missed deadlines.
- Proper accountability which includes not allowing a member to see other member's account. Only administrator will see and manage all member accounts

5. Other Non-functional Requirements

5.1 Performance Requirement

Fast and Accurate Performance:

The CRM system should offer fast and accurate performance to meet the needs of efficient customer service interactions.

Error Handling:

The system must effectively handle expected and unexpected errors, preventing information loss and minimizing downtime.

Data Handling Capacity:

The system should be capable of handling large amounts of customer data, accommodating a high number of users and interactions without faults.

5.2 Safety Requirement

Regular database backups are essential to prevent data loss due to crashes, viruses, or operating system failures. Proper UPS/inverter facilities are required to ensure system continuity during power supply failures.

5.3 Security Requirement

- System will use secured database
- Normal users can just read information but they cannot edit or modify anything except their personal and some other information.
- System will have different types of users and every user has access constraints
- Proper user authentication should be provided
- No one should be able to hack users' password
- There should be separate accounts for admin and members such that no member can access the database and only admin has the rights to update the database.

5.4 Requirement attributes

- There may be multiple admins creating the project, all of them will have the right to create changes to the system. But the members or other users cannot do changes
- The project should be open source
- The Quality of the database is maintained in such a way so that it can be very user friendly to all the users of the database
- The user be able to easily download and install the system

5.5 Business Rules

A business rule is anything that captures and implements business policies and practices. A rule can enforce business policy, make a decision, or infer new data from existing data. This includes the rules and regulations that the System users should abide by. This includes the cost of the project and the discount offers provided. The users should avoid illegal rules and protocols. Neither admin nor member should cross the rules and regulations.

5.6 User Requirement

The users of the Customer Service CRM, including customers and administrators, have varying levels of computer and internet browsing knowledge. Customers are expected to have a basic understanding, while administrators require a deeper knowledge to handle potential system issues.

The system provides a user-friendly interface and comprehensive support materials, such as user manuals, online help resources, and installation guides. These resources aim to educate both customers and employees on using the system efficiently, minimizing challenges. The admin provides certain facilities to the users in the form of:-

- Backup and Recovery
- Forgot Password
- Data migration i.e. whenever user registers for the first time then the data is stored in the server
- Data replication i.e. if the data is lost in one branch, it is still stored with the server
- Auto Recovery i.e. frequently auto saving the information
- Maintaining files i.e. File Organization
- The server must be maintained regularly and it has to be updated from time to time

6. Other Requirements

6.1 Data and Category Requirement

There are different categories of users namely teaching staff, Librarian, Admin, students etc. Depending upon the category of user the access rights are decided. It means if the user is an administrator then he can be able to modify the data, delete, append etc. All other users except the Librarian only have the rights to retrieve the information about database. Similarly there will be different categories of books available. According to the categories of books their relevant data should be displayed. The categories and the data related to each category should be coded in the particular format.

6.2 Appendix

A: Admin, Abbreviation, Acronym, Assumptions; B: Books, Business rules; C: Class, Client, Conventions; D: Data requirement, Dependencies; G: GUI; K: Key; L: Library, Librarian; M: Member; N: Non-functional Requirement; O: Operating environment; P: Performance, Perspective, Purpose; R: Requirement, Requirement attributes; S: Safety, Scope, Security, System features; U: User, User class and characteristics, User requirement;

6.3 Glossary

The following are the list of conventions and acronyms used in this document and the project as well:

- Administrator: A login id representing a user with user administration privileges to the software
- User: A general login id assigned to most users
- Client: Intended users for the software
- SQL: Structured Query Language; used to retrieve information from a database
- SQL Server: A server used to store data in an organized format
- Layer: Represents a section of the project
- User Interface Layer: The section of the assignment referring to what the user interacts with directly
- Application Logic Layer: The section of the assignment referring to the Web Server. This is where all computations are completed
- Data Storage Layer: The section of the assignment referring to where all data is recorded
- Use Case: A broad level diagram of the project showing a basic overview
- Class diagram: It is a type of static structure diagram that describes the structure of a system by showing the system's cases, their attributes, and the relationships between the classes
- Interface: Something used to communicate across different mediums
- Unique Key: Used to differentiate entries in a database

6.4 Class Diagram

A class is an abstract, user-defined description of a type of data. It identifies the attributes of the data and the operations that can be performed on instances (i.e. objects) of the data. A class of data has a name, a set of attributes that describes its characteristics, and a set of operations that can be performed on the objects of that class. The classes' structure and their relationships to each other frozen in time represent the static model. In this project there are certain main classes which are related to other classes required for their working. There are different kinds of relationships between the classes as shown in the diagram like normal association, aggregation, and generalization. The relationships are depicted using a role name and multiplicities. Here 'Librarian', 'Member' and 'Books' are the most important classes which are related to other classes.

